studied the clinical characteristics of *staphylococcus aureus* catheter-related septic thrombosis as well as the appropriate management and duration of treatment.

Methods. We conducted this retrospective study where we included patients with CLABSI due to *Staphylococcus aureus* who had a concomitant radiographic evidence of thrombosis at the level of catheter placement between the years 2005 and 2017. We collected data pertaining to patients' medical history, clinical presentation, management, treatment and outcome within 3 months of bacteremia onset. Failure was defined as persistence of signs and symptoms at 72 hours, persistence bacteremia at 48–96 hours, relapse, complications or overall mortality.

Results. A total of 128 patients were included. The median age was 55 years. Total relapse/recurrence rate was 8% and all-cause mortality within 3 months was 16%. We found no significant difference in overall outcome between patients who had deep vs. superficial thrombosis. Patients with superficial thrombosis were found to have higher rate of pulmonary complications (25% vs. 6%; $P = 0.01$) compared with those with deep thrombosis. Patients who received less than 28 days of intravascular antibiotic therapy had higher all-cause mortality (31 vs. 5% $P = 0.001$). A multivariate logistic regression analysis identified two independent predictors of treatment failure: presence in the ICU at any point during their illness (odds ratio (OR) = 2.74, 95% confidence interval (CI) = 1.08–6.99, $P = 0.034$) and not receiving anticoagulation (OR = 0.24, 95% CI = 0.11–0.54, $P < 0.001$).

Conclusion. Intravenous antimicrobial therapy for 28 days or longer carries a survival advantage over shorter duration of therapy and anticoagulation as an adjunctive treatment is an independent predictor of successful antimicrobial therapy.

Disclosures. **I. Raad**, The University of Texas MD Anderson Cancer Center: Shareholder, Licensing agreement or royalty. The Unversity of Texas MD Anderson Cancer Center: Shareholder, Dr. Raad is a co-inventor of the Nitroglycerin-Citrate-Ethanol catheter lock solution technology which is owned by the University of Texas MD Anderson Cancer Center (UTMDACC) and has been licensed to Novel Anti-Infective Technologies LLC, in which UTMDACC and Licensing agreement or royalty.

2100. Nitroglycerin-Citrate-Ethanol Catheter Lock Solution Is Highly Effective in Eradicating *Candida auris* Biofilms

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Background. Blood stream infections due to *Candida auris* is a significant public health concern due to increased patient mortality, frequent misidentification, and high rates of antifungal resistance. *C. auris* is known to be azole resistant, however several strains have been identified with elevated MICs to all classes of antifungals. Current treatment options for a pan-resistant strain of *C. auris* would be extremely challenging. Previously we have shown that non-antibiotic, Nitroglycerine + Citrate + Ethanol (NiCE) lock solution was highly efficacious in eradicating various species of multi-drug-resistant Candida. In this study we compared the efficacy of NiCE with standard of care antifungals commonly used in lock solutions in eradicating *C. auris* biofilms.

Methods. Biofilm eradication of *C. auris* was evaluated in 10 strains. *Candida auris* biofilm was grown on silicone discs for 24 hours. Discs were then washed to remove any non-adherent organisms and exposed for 2 hours to various antifungal lock solutions including NiCE, Echinocandins, Azoles, and Amphotericin B. Discs were exposed to Muller–Hinton broth as a control. Subsequently discs were sonicated for 15 minutes in 5 mL of saline and quantitatively cultured onto sabouraud dextrose agar. Plates were incubated at 37°C for 48 hours and counted for growth. All testing was conducted with 6 replicates.

Results. NiCE and Caspofungin were significantly more effective in eradicating *C. auris* biofilms compared with control ($P = 0.002$ and 0.008, respectively). However, Caspofungin failed to eradicate a few strains of *C. auris* biofilm while NiCE completely eradicated all 10 strains. Micafungin, Anidulafungin, Fluconazole, and Voriconazole were not significantly different than control ($P > 0.05$) for all strains.

Conclusion. NiCE catheter lock solution was capable of completely eradicating all *C. auris* biofilms within 2 hours indicating high potential for preventing CRBSI caused by *C. auris*. Caspofungin eradicated some strains of *C. auris* biofilm, but failed to eradicate all. Other commonly used antifungals were no different than control. Future clinical studies to verify these findings need to be conducted.

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2101. Catheter-related Infections Complicating Central Venous Catheter Access Device Insertion: A Retrospective Audit and Comparison of Two Cohorts

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Background. Central venous access devices (CVAD) are essential for long-term intra-venous treatment of malignancies and other conditions. Catheter-related infections (CRI) complicate long-term CVAD use at rates between 1.5 and 5%, resulting in significant morbidity and mortality. Current evidence does not support a role for antibiotic prophylaxis pre-insertion. We aim to determine rates of CRIs complicating CVAD insertions by vascular surgery and interventional radiology in a single institution and examine the role of antibiotic prophylaxis in prevention.

Methods. A retrospective audit was carried out on CVAD insertions (tunnelled central venous catheter (CVC) or subcutaneous port) by the Vascular Surgery and Radiology Departments at a tertiary teaching hospital in Sydney, Australia from January 2014 to December 2016. Data were collected on patient demographics, antibiotic prophylaxis, skin preparation and CRIs. Rates of CRIs were compared by chi-square test (α 0.05).

Results. Ninety-five (11 tunnelled CVC; 84 subcutaneous ports) and 222 (21 tunnelled CVC; 201 subcutaneous ports) CVAD insertions were performed by vascular surgery and radiology, respectively. Median age was 56 years (IQR 48–66) in the vascular cohort and 64 years (IQR 55–72) in the radiology cohort. Females were predominant in both vascular (70; 73.7%) and radiology (119, 53.6%) cohorts and the most common indication was chemotherapy (vascular 84; 88.4% and radiology 205; 92.8%, $n = 1$ missing). Antibiotic prophylaxis was used in 88 (92.6%) vascular insertions but only 2 (0.95%, $n = 12$ missing) insertions by radiology. Iodine skin preparation was preferred for vascular insertions (92; 98.9%, $n = 2$ missing) compared with chlorhexidine for radiology insertions (214; 97.7%, $n = 3$ missing). CRIs occurred in 4 (4.2%) of the vascular cohort and 8 (3.6%) of radiology cohort ($P = 0.80$).

Conclusion. Rates of CRIs complicating CVAD procedures were similar in a vascular cohort where most received antibiotic prophylaxis, and in a radiology cohort where antibiotic prophylaxis was rarely used. There was no evidence to support antibiotic prophylaxis in prevention of CRIs, although choice of skin preparation and other factors may have confounded findings.

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2102. Peripherally Inserted Central Catheter (PICC) Placement: Indications and Financial Impact

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Background. Although PICCs are important for venous access, they pose risk of infection, venous thrombosis, and are costlier relative to other forms of vascular access. We conducted a preliminary quality improvement study to assess the indications for PICC placement at our institution and also to evaluate the associated healthcare cost.

Methods. We obtained data on all PICCs placed by the vascular access team over a representative 2-month period (November and December 2017) at Allegheny General Hospital. Indications entered during order entry for PICC placement were collected. Additionally, charts of all central line-associated blood stream infections (CLABSI) in 2017 were reviewed to determine the number of events where PICC may have been implicated. We calculated the cost incurred for PICC placement and that for treating infection in PICC-associated CLABSI. The cost of each PICC insertion is about $4,700 and that of each CLABSI approximates $25,000.

Results. A total of 451 PICCs were inserted over the 2-month period. Documented indications for PICC insertion included: "poor venous access" (128, 28.3%), "receiving high-risk drugs" (91, 20%), "requires multiple simultaneous IV infusions" (84, 18.6%), "needed upon discharge for long-term use" (63, 13.9%), and "receiving vasopressors, total parental nutrition or chemotherapy" (61, 13.6%). There was no indication described for 23 PICC orders (5.2%). Twenty-five CLABSI were encountered in 2017; 10 of them were PICC associated. Of those, PICC was not absolutely indicated in two patients based on chart review (with cost burden of about $65,000 in these two instances).

Conclusion. Poor venous access and multiple IV infusions are not absolute indications for PICC insertion in most circumstances. In our study, this amounted to nearly half (212/451) of the indications for PICC placement. Our hospital could have potentially saved a million dollars in the 2-month study period if PICCs were not placed for these indications. Given the costs and risks associated with PICC use, alternative venous access devices should be strongly considered. By rigorously reevaluating indications for PICC use we may improve both patient outcomes and reduce healthcare costs.

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